

SEP 12 2006

REMARKS

The Examiner rejected Claims 1, 2, 11, 19 and 20 under 35 U.S.C. 102(b) as being anticipated by Liou (US 5,086,197). The above amendments cancel Claim 19, and hence render this rejection moot with respect to that claim. Applicant traverses this rejection with respect to the remaining claims. The Examiner has the burden of showing by reference to the cited art each claim limitation in the reference. Anticipation under 35 U.S.C. 102 requires that each element of the claim in issue be found either expressly or inherently in a single prior art reference. *In re King*, 231 USPQ 136, 138 (Fed. Cir. 1986); *Kalman v. Kimberly-Clark Corp.*, 218 USPQ 781, 789 (Fed. Cir. 1983). The mere fact that a certain thing may result from a given set of circumstances is not sufficient to sustain a rejection for anticipation. *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (BdPatApp&Int 1986). "When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference" (*In re Rijckaert*, 28 USPQ2d, 1955, 1957).

Under the doctrine of inherency, if an element is not expressly disclosed in a prior art reference, the reference will still be deemed to anticipate a subsequent claim if the missing element "is necessarily present in the thing described in the reference" *Cont'l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). "Inherent anticipation requires that the missing descriptive material is 'necessarily present,' not merely probably or possibly present, in the prior art." *Trintec Indus., Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295, 63 USPQ2d 1597, 1599 (Fed. Cir. 2002) (quoting *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)).

Regarding Claims 1 and 11, the Examiner identifies sensors 14, 14', 16, 16' as the image sensors, and the grid pad as the detectable texture. The Examiner maintains that the apparatus of Liou forms an image of the grid pad on the image sensor at a specified rate and that the apparatus of Liou compares two such images to produce a motion signals indicative of the motion of the apparatus relative to the detectable surface. The Examiner admits that Liou does not specifically teach forming images at a specified rate. The Examiner maintains that this feature is inherent in Liou.

First, the apparatus of Liou forms a two-bit signal representing the position of the apparatus relative to the grid pattern in the x-direction and a two-bit signal representing the position of the apparatus relative to the grid pattern in the y-direction. These two-bit patterns are the value of the outputs of the sensors identified by the Examiner. This information is determined from a single "image" of the grid pattern. These values are output to the device that is connected to the apparatus and are equivalent to the outputs of an encoder. If the apparatus moves, these values change and the device attached to the apparatus must interpret the change to provide the motion direction and magnitude. Even if one were to interpret these two-bit signals as an "image", there is still no teaching in Liou that the apparatus compares two such images to produce the motion signals. Furthermore, the signals produced are not indicative of the motion of the apparatus relative to the grid pattern; these signals are indicative of the position of the apparatus relative to the grid pattern.

Second, there is no teaching in Liou that the "images" are formed at a specified rate. Liou outputs the "image" continuously to the device attached thereto. In the system taught in Liou, there is no need to take images at a specified rate. The output of Liou is only compared to a previous value by the apparatus attached to the apparatus of Liou when the "image" changes.

Finally, the apparatus of Liou forms an image of the grid pattern on a focal plane of a condenser array. Each of the four optical elements in the condenser array then adds together all of the light from a corresponding portion of the image and focuses the resulting light signal onto a corresponding one of the detectors identified by the Examiner. The pattern produced on the sensors is not an image of the surface, but rather a mathematical construct produced from the image. Accordingly, Applicant submits that Claims 1, 11, and the claims dependent therefrom are not anticipated by Liou.

Regarding Claim 20, the Examiner takes the position that the values in the sensors are correlation values. Applicant must disagree. There is no teaching in Liou of determining the correlation of the first and second frames. However, to make this distinction clear, Claim 20 has been amended to clearly distinguish the claimed invention from that proposed by the Examiner.

The Examiner rejected Claims 4 and 21 under 35 U.S.C. 103(a) as being unpatentable over Liou in view of Lauffenburger, *et al* (hereafter "Lauffenburger") (US 6,963,059). Applicant traverses this rejection and repeats the arguments made above with respect to the missing teachings in Liou.

Regarding Claim 4, the Examiner stated that Liou teaches all of the limitations of Claim 4, except for the limitation of providing a supplemental light source. The Examiner looks to Lauffenburger for the missing teaching. Applicant must disagree with the Examiner's reading of the references. Lauffenburger teaches controlling the light output of a single light source in an optical pointing device in response to the light levels sensed by a sensor in that device. There is no teaching of a supplemental light source. If anything, the combination of the teachings of the two references would be a device in which the light source used to illuminate the grid pattern in the device of Liou has a variable intensity that is controlled by a controller in the apparatus of Liou. Second, the Examiner has not pointed to any suggestion in the art that would cause someone of ordinary skill to alter the teachings of Liou or Lauffenburger to include a supplemental light source. "The mere fact that a reference could be modified to produce the patented invention would not make the modification obvious unless it is suggested by the prior art." (*Libbey-Owens-Ford v. BOC Group*, 4 USPQ 2d 1097, 1103). "When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference" (*In re Rijckaert*, 28 USPQ2d, 1955, 1957). Hence, Applicants respectfully submit that the Examiner has not made a *prima facie* case for obviousness with respect to Claim 4.

With respect to Claim 21, as amended above, Liou does not provide the correlation values recited in the claim and hence, Claim 21 is not obvious in view of the cited references.

The Examiner rejected Claims 5, 8, 13, and 16 under 35 U.S.C. 103(a) as being unpatentable over Liou in view of Mumford (US 6,377,249). Applicant traverses this rejection.

With respect to Claims 5 and 13, Applicant repeats the arguments made above with respect to the missing teachings in Liou. The Examiner has not pointed to any teaching in Mumford that provides the missing teachings in question.

Regarding Claims 8 and 16, the Examiner stated that Liou teaches the limitations of Claim 1 and Claim 11 except for the limitation that the illuminated surface is a liquid crystal display and wherein said detectable texture comprises pixels of said liquid crystal display. The Examiner looks to Mumford as providing the missing teaching. According to the Examiner, Mumford teaches detecting the pixels of a liquid crystal display and that the liquid crystal display comprises a detectable texture. The Examiner goes on to state that one would be motivated to replace the detectable texture utilized in Liou with a liquid crystal display as taught in Mumford so that a liquid crystal display could be used as the illuminated surface. The Examiner has not pointed to any advantage for replacing the surface of Liou with a liquid crystal.

First, Applicant repeats the arguments made above with respect to the missing teachings in Liou. The Examiner has not pointed to any teaching in Mumford that provides the missing teachings in question.

Second, the Examiner has not pointed to any teaching, other than the present application, that the pixels of a liquid crystal display provide a detectable texture. The scheme taught in Mumford depends on detecting the specific colors generated by the pixels, not on any form of texture.

Third, the scheme taught in Liou requires a specific grid pattern to be operable. In principle, one could program the liquid crystal display to project that grid pattern. However, there is no advantage in doing so. The cost of a liquid crystal display is much higher than the illuminated transparency taught in Liou. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to Claims 8 and 16.

The Examiner rejected Claims 6 and 14 under 35 U.S.C. 103(a) as being unpatentable over Liou in view of Minn (US 4,565,947). Applicant traverses this rejection.

The Examiner stated that Liou teaches the limitations of Claim 6 and Claim 14 except for the limitation that the illuminated surface is a cathode ray tube and that the detectable texture is a shadow mask of the cathode ray tube. According to the Examiner, Minn teaches a

light pen where the illuminated surface is a cathode ray tube and said detectable texture is a shadow mask of said cathode ray tube. The Examiner maintains that it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Minn in the teachings of Liou to have a device that reads the shadow mask of a cathode ray tube so that it can be used directly on the display surface of a cathode ray tube.

First, Applicant must disagree with the Examiner's reading of the Minn reference. Minn teaches a light pen that operates on the surface of a cathode ray tube having a shadow mask; however, the light pen of Minn does not detect the shadow mask. The light pen of Minn determines the position of the light pen by reading out the x and y coordinates of the spot on the cathode ray tube when the light pen detects light. This is a conventional light pen arrangement. Minn is directed to providing a better phosphor composition for the surface of the tube. There is no teaching in Minn of reading the shadow mask.

Second, the Examiner has not pointed to any reason that one would want to use the apparatus of Liou on the surface of a cathode ray tube. As noted above, the system taught in Liou depends on the surface having a specific grid pattern. The Examiner has not pointed to any teaching that the grid pattern in question can be provided by the shadow mask. In fact, it should be noted that the shadow mask on a cathode ray tube is not a grid pattern of parallel lines as required by the apparatus of Liou, and hence, there is no reasonable expectation of success in making the alteration suggested by the Examiner. Furthermore, the device taught by Liou would not function properly if there was also an image on the cathode ray tube, since light from that image would also be condensed onto the detectors and interfere with the operation of the detectors.

Finally, one could program the cathode ray display to project that grid pattern. However, there is no advantage in doing so. The cost of a cathode ray display is much higher than an illuminated transparency. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to the claims in question,

The Examiner rejected Claims 7 and 15 under 35 U.S.C. 103(a) as being unpatentable over Liou in view of Ditzik (US 5,771,039). Applicant traverses this rejection, and repeats the arguments made above with respect to the missing teachings in Liou with respect to

Claims 1 and 11 from which the claims in question depend. The Examiner has not pointed to any teachings in Ditzik that provide the missing teachings.

The Examiner stated that Liou teaches the limitations of Claim 1 and Claim 11 as discussed above, however, Liou does not teach an apparatus where the illuminated surface is a liquid crystal display and wherein said detectable texture is a diffuser plate of said liquid crystal display. The Examiner looks to Ditzik as teaching a display device for use with pen/stylus input devices where the illuminated apparatus is a liquid crystal display and wherein said detectable texture is a diffuser plate of said liquid crystal display. The Examiner maintains that it would have been obvious to one of ordinary skill to incorporate the teachings of Ditzik in the teachings of Liou to have a liquid crystal display with a diffuser plate as the illuminated surface in order to utilize a commonly used display device and to have a diffuser to evenly distribute the backlight over the screen area.

First, Applicant must disagree with the Examiner's reading of Ditzik. There is no teaching in Ditzik that the optional diffuser plate taught therein has a detectable texture, no less that such a texture is visible from the front side of the display in a manner that would allow it to function in the apparatus of Liou. For example, a plate consisting of scattering particles having dimensions of the order of the wavelength of the light from the light source will provide the desired diffusion property without presenting a texture that can be imaged.

In addition, even if the diffusion plate provided a detectable texture, the location of the diffusion plate taught in Ditzik is such that the pattern would not be detectable in a manner that would allow it to be used for navigation. The diffusion plate taught in Ditzik is behind the liquid crystal panel. It is only visible through those pixels that are open at any given time. The pixels of the panel are opened and closed at times that depend on the image being displayed. Hence, there is no stable pattern that is visible through the liquid crystal display.

Second, the apparatus of Liou requires a specific grid pattern of parallel lines to operate correctly. There is no teaching that the pattern in the diffusion plate would provide the required grid pattern. Hence, there is no reasonable expectation of success in making the

combination suggested by the Examiner. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to the claims in question.

The Examiner rejected Claims 9, 10, 17 and 18 under 35 U.S.C. 103(a) as being unpatentable over Liou in view of Burns (US 5,442,147). Applicant traverses this rejection.

Regarding Claims 9 and 16, the Examiner stated that Liou teaches the limitations of Claim 1 and Claim 11, however, Liou does not teach an apparatus where wherein said illuminated surface is overlaid with a semi-transparent layer comprising said detectable texture. The Examiner looks to Burns for the missing teachings. With respect to Claims 10 and 18, the Examiner notes that the pattern taught in Burns provides an absolute position indication.

Applicant repeats the arguments made above with respect to the missing teachings in Liou with respect to Claims 1 and 11. The Examiner has not pointed to any teachings in Burns that provide the missing teachings. In addition, the layer taught in Burns has a pattern that is locally unique so that the absolute position on the surface can be determined. Utilizing such a pattern in the apparatus of Liou would lead to an inoperative device, since the apparatus taught in Liou requires a regularly spaced grid of parallel lines. If the pattern were to differ from this arrangement, the optical processing provided by the condenser optical elements would fail. Hence, there is no reasonable expectation of success in making the claimed combination. Accordingly, Applicant submits that the Examiner has not made a *prima facie* case for obviousness with respect to the claims in question.

The Examiner indicated that Claims 3, 12 and 22 would be allowable if rewritten in independent form. The above amendments provide the required redrafting of these claims.

I hereby certify that this paper is being sent by FAX to 571-273-8300.

Respectfully Submitted,



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